V25 Series ArmorDome™ CCTV Camera User Guide

SILENT WITNESS®

Securing your world

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Overview

The unobtrusive, low-profile design of the V25 ArmorDome™ CCTV Camera is ideal for indoor and outdoor installations in commercial and residential venues.

Before You Begin

> Please read this guide carefully before you install the V25 ArmorDome CCTV Camera.
>
> Keep this guide for future reference.

WARNING! The use of CSA Certified/UL Listed Class 2 power adapters is required to ensure compliance with electrical safety standards.

Unpack Everything

Check that the items received match those listed on the order form and packing slip. The V25 packing box should include, in addition to this Installation Guide:

- One security hex key
- Four #6-32 x 3/4 in. plated steel, Phillips head machine screws
- One #6 nylon washer
- One #6-32 x 3/8 in. stainless steel, Phillips head machine screw

If any parts are missing or damaged, please contact the dealer you purchased the camera from, or call Silent Witness Customer Service. See “Service” on page 17.

Equipment Required

You will require the following tools to complete the installation:

- Phillips screwdriver
- Side-cutters

Initial Setup

Before installing the V25 Camera, you must first:

- Disassemble the camera.
- Set up the camera for mounting on a wall or a ceiling.

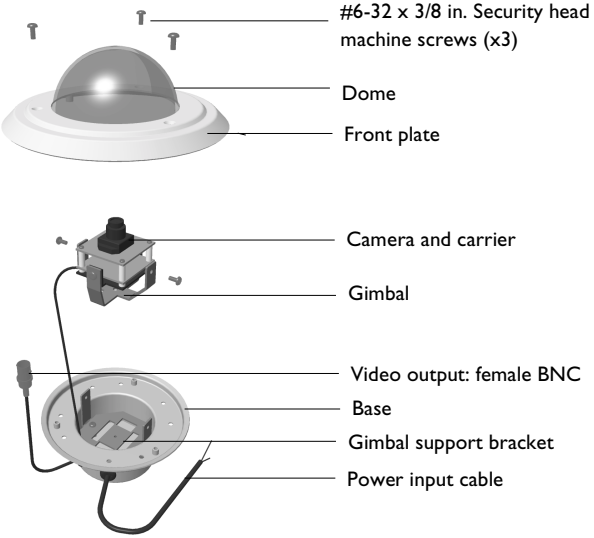
Disassembling the Camera

To disassemble the camera:

1. Use the security hex key provided to remove the three #6-32 x 3/8 in. machine screws securing the V25 front plate and dome to the base (see *Camera Components*). Set aside the screws.
2. Use a Phillips screwdriver to remove the two #6-32 x 1/4 in. machine screws that attach the camera gimbal to the gimbal support bracket.

Do not remove the camera carrier from the gimbal at this time. Also, do not disconnect the wires from the camera.

Figure 1 Camera Components



If you are mounting the V25 Camera on a wall, proceed to *Wall Mount Setup*. If you are mounting the V25 Camera on a ceiling, proceed to *Ceiling Mount Setup*.

Wall Mount Setup

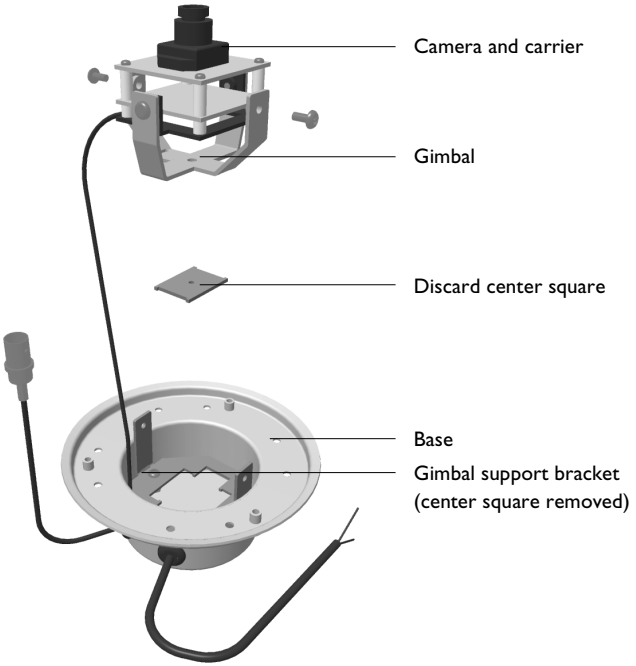
When the V25 Camera is mounted on a wall, the camera carrier can be adjusted to pan and tilt.

Once you have disassembled the camera, prepare the camera for mounting on a wall:

1. Use a pair of side-cutters to remove the perforated square in the gimbal support bracket (see *Wall Mount Setup*). Discard this square. This allows full motion of the camera gimbal.
2. Use a Phillips screwdriver and two #6-32 x 1/4 in. machine screws to attach the camera gimbal and camera carrier to the modified gimbal support bracket.

The V25 Camera is now set up for mounting on the wall. Proceed to *Installation* on *page 6*.

Figure 2 Wall Mount Setup



Ceiling Mount Setup

When the V25 Camera is mounted on the ceiling, the camera carrier can be adjusted to rotate and tilt.

Once you have disassembled the camera, prepare the camera for mounting on a ceiling:

1. Remove both arms from the gimbal support bracket by holding the end of the arm and bending it back and forth until it breaks off (see *Figure 3*). Do not remove the center square from the gimbal support bracket.
2. Use a Phillips screwdriver to remove the two #6-32 x 1/4 in. machine screws that attach the camera carrier to the gimbal.
3. Use side-cutters to remove the two perforated arms of the gimbal.
4. Attach the gimbal to the gimbal support bracket (see *Figure 3*) using one #6-32 x 3/8 in. machine screw and a #6 nylon washer (provided). Tighten the screw.

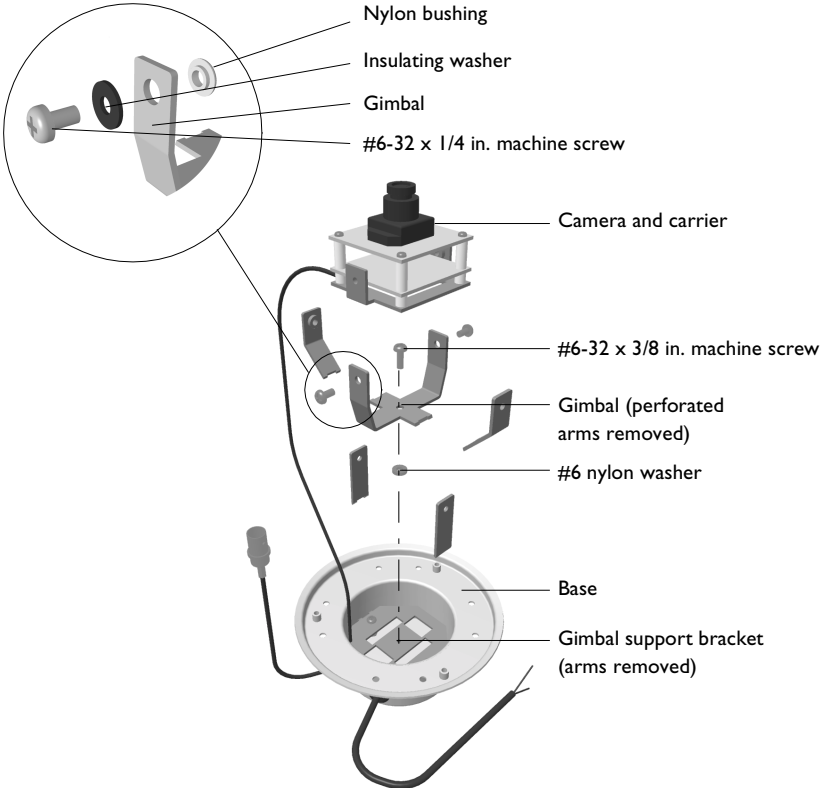
Caution The nylon washer must be mounted between the gimbal and the gimbal support bracket to allow the gimbal to rotate clockwise without binding.

5. Use two #6-32 x 1/4 in. machine screws to attach the camera carrier to the gimbal.

Caution Line-lock cameras have an electrically isolated camera carrier to prevent ground loop problems. Ensure the nylon bushings and insulating washers are installed as shown in *Figure 3*.

The V25 Camera is now ready for mounting on a ceiling. Proceed to *Installation* on *page 6*.

Figure 3 Ceiling Mount Setup Showing Electrical Isolation of Line Lock Camera Carrier



Installation

The V25 Camera is designed to be flush mounted on a panel or in a standard deep double-gang electrical box. The camera can be located indoors or outdoors, on a wall or ceiling, in accordance with the current Electrical Code or any national wiring rules that apply.

Follow the *Initial Setup* procedure before installing the V25 Camera.

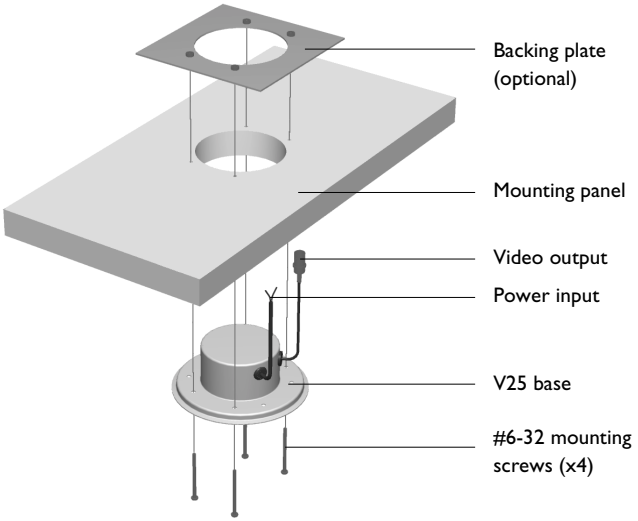
Mounting the Camera on a Wall or Ceiling

To mount the V25 Camera on a wall or ceiling panel:

1. Mark and drill out mounting holes in the wall or ceiling panel (see *Figure 4*), using the mounting template shown on *page 21*.
2. Insert the camera base into the mounting hole.
3. Secure the camera to the mounting panel using four #6-32 self-tapping screws (not provided).

Note An optional V25 Backing Plate Kit is available to mount the V25 Camera in a removable ceiling panel as shown in *Figure 4*. Please contact Silent Witness Sales for more information.

Figure 4 Wall/Ceiling Mount Installation

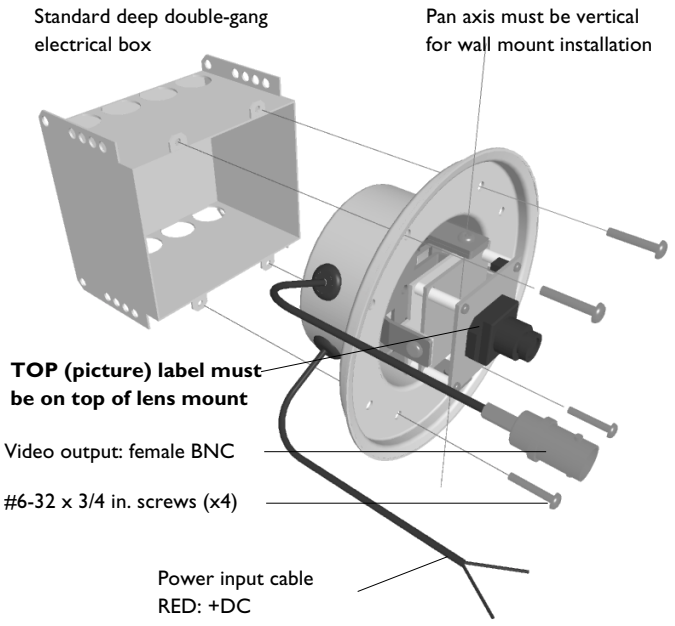


Mounting the Camera in an Electrical Box

To mount the V25 Camera in an electrical box:

1. Install the V25 in the electrical box (see *Figure 5*).
2. Secure the camera in place with the four #6-32 x 3/4 in. plated steel, Phillips head machine screws provided.

Figure 5 Electrical Connections (Electrical Box)


Standard deep double-gang electrical box
Pan axis must be vertical for wall mount installation
TOP (picture) label must be on top of lens mount
Video output: female BNC
#6-32 x 3/4 in. screws (x4)
Power input cable
RED: +DC
BLACK: -DC

This camera is polarity independent for AC operation (see *Adjusting the Line Lock (Vertical Phase) for 24 VAC Operation*).

Note To ensure the vertical alignment is the same for all cameras, make all power connections the same phase.

Wiring

Read the *Cable Guidelines* on *page 20* for cable gauge and length recommendations. To connect the wiring:

1. Pull the video and power supply cables through the conduit to the electrical box or panel mount location.

2. Install a male BNC connector on the video cable coming from the video monitor or CCTV system.
3. Connect the video cable to the female BNC connector and cable coming from the base of the V25 Camera.
4. Connect the AC or DC power wires to the red and black wires coming from the base of the V25 Camera, as shown in *Figure 5*.

WARNING! The use of CSA Certified/UL Listed Class 2 power adapters is required to ensure compliance with electrical safety standards.

Caution For outdoor installations, or any installation where water may be a problem, ensure that all electrical connections are covered to prevent short circuits or contamination.

Aiming and Focusing

To aim the V25 Camera:

1. Turn on the camera power and monitor the video signal. Adjust the camera carrier to the desired view.

Note The TOP (of picture) label must be on the top of the lens mount to ensure the video image is upright.

2. If necessary, turn the lens to adjust the focus (see *Figure 6*).

   Cameras with a 12 mm lens may need the lens rotated approximately 1/4 of a turn counterclockwise to allow for the magnification properties of the dome. Hold the front plate and dome in position to check the focus.

3. Hold the front plate and dome in place to ensure that it does not interfere with the camera or block the camera view. If the enclosure cover does interfere with the camera, slide the camera support bracket away from the camera lens (toward the terminal board).

If vibration is a significant factor, use Loctite™ Serviceable Threadlocker (or equivalent) to secure all camera adjustments.

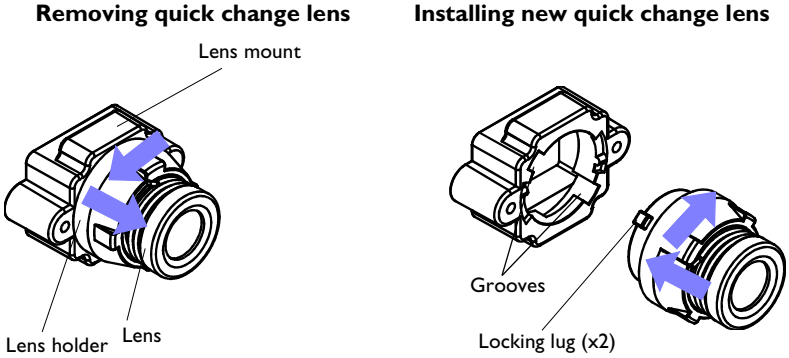
Changing the Quick Change Lens

Some V25 Cameras have a quick change lens mount, designed to provide a fast and easy way to change the camera lens. To change the quick change lens:

1. Remove the quick change lens:
   a. Turn the lens holder 45° counterclockwise (see *Figure 6*).
   b. Pull the lens holder out of the lens mount.
2. Install a new quick change lens:
   a. Insert the lens holder into the lens mount. Align the locking lugs on the lens holder with the grooves in the quick change lens mount (see *Figure 6*).
   b. Turn the lens holder 45° clockwise to lock the lens holder in the lens mount.
   c. If necessary, turn the lens to adjust the focus.

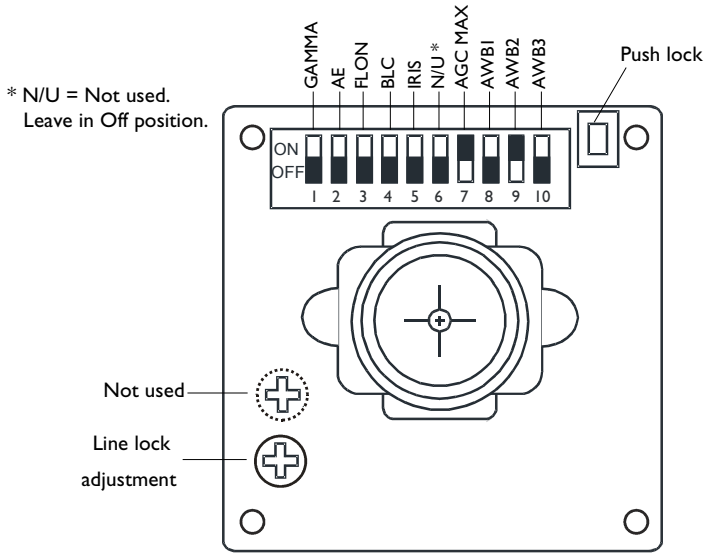
Note Lenses are pre-focused at the factory but may require a final adjustment after installation.

Figure 6 Lens Mount and Quick Change Lens



Dip Switch Functions (Color Cameras)

Figure 7 Color Camera Switch Settings



Factory (default) settings
Fixed lens camera

Adjustment Method (Color Cameras)

Switch no.	Function	Off	On
1	GAMMA	Off (0.45)	On (1.0)
2	AE (Automatic Exposure)	Off	On (see *Manually Setting Shutter Speed (Color Cameras)*)
3	FLON (Flicker Less)	Off	On
4	BLC (Backlight Compensation)	Off	On (Center window)
5	IRIS	Electronic IRIS	Not used
6	Not used	Not used	Not used
7	AGC	4 dB	26 dB

White Balance Adjustment Method (Color Cameras)

Symbol	SWB8 AWB1	SWB9 AWB2	SW10 AWB3
AWB	Off	Off	Off
ATW	Off	On	Off
Push lock	Off	On	On *
Indoor (3200° K)	On	Off	On
Outdoor (6500° K)	On	On	On

* To manually set Push lock feature: place a white background in front of camera and press "Push lock" switch.

Manually Setting Shutter Speed (Color Cameras)

To manually set the shutter speed, turn switch #2 to the ON position; then set switch #3, #4, and #5 for the desired shutter speed (see *Figure 7*).

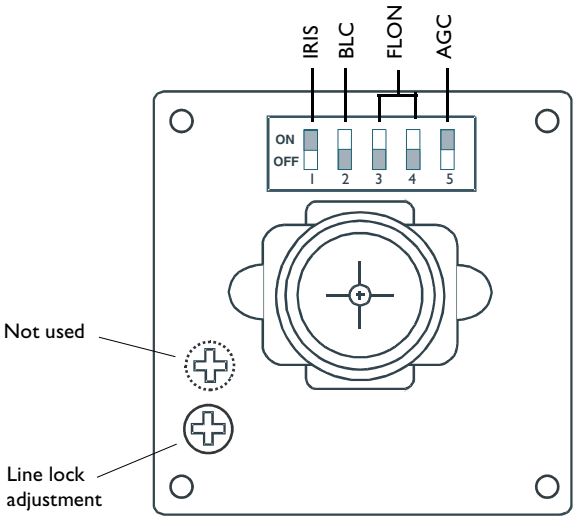
Shutter speed(s)	SW2 AE	SW3 FLON	SW4 BLC	SW5 IRIS
1/50 (PAL) 1/60 (NTSC)	On	Off	Off	Off
1/100 (NTSC) 1/120 (PAL)	On	Off	Off	On
1/250	On	Off	On	Off
1/500	On	Off	On	On
1/1000	On	On	Off	Off
1/2000	On	On	Off	On
1/4000	On	On	On	Off
1/10000	On	On	On	On

Note FLON and BLC can be set when switch #2 is set to the OFF position.

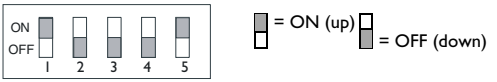
Caution Before you adjust the shutter speed, it is important that you understand how the settings can affect the scene detail.

Dip Switch Functions (Monochrome Cameras)

Figure 8 Monochrome Camera Switch Settings



Factory (default) settings



Adjustment Method (Monochrome Cameras)

Switch no.	Function	Off	On
1	IRIS Control	Not used	Electronic IRIS
2	BLC	Off	On
3,4	FLON (Flicker Less)	Off	On
5	AGC	1 dB	26 dB

Adjusting the Line Lock (Vertical Phase) for 24 VAC Operation

In multiple camera installations, wire all cameras to the same phase. This will ensure that the vertical phase of all cameras are aligned. Phase adjustment may be necessary to prevent picture roll when switching between cameras.

Note If the phase cannot be adjusted to prevent picture roll, reverse the power polarity.

To adjust the vertical phase:

While switching between the two cameras, turn the Line-lock adjustment screw (see *Figure 7*) on one camera until there is no vertical roll.

Adjusting the Backlight Compensation

The backlight compensation (BLC) adjusts the electronic shutter speed of the camera based on the light levels in specific areas of the scene. This adjustment provides better image quality for scenes that are unevenly lit.

To adjust the BLC, set the BLC switch to ON (see *Figure 8*). Center window weighted.

Installing the Front Plate and Dome

Secure the front plate and dome to the base with the three #6-32 5/8 in. security machine screws, using the hex key provided.

Routine Maintenance

Use regular liquid cleaners to remove most dirt and grime from the dome.

Caution Do not use harsh or abrasive cleaners which can scratch the polycarbonate dome and reduce visibility of the camera.

If the camera view is obstructed by scratches, remove the front plate and rotate it 120° to find an unscratched part of the dome.

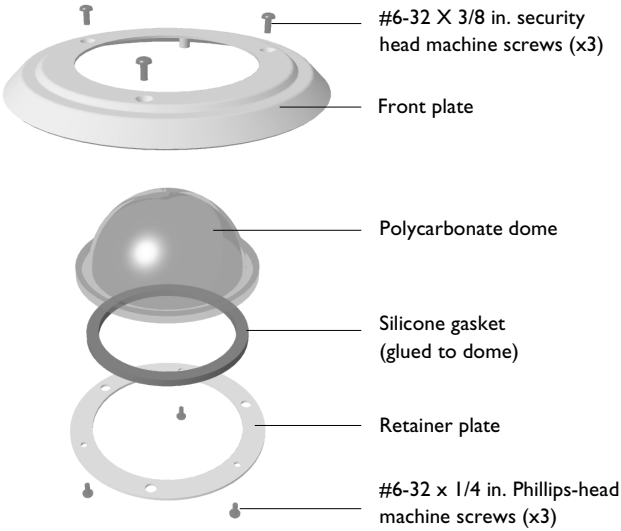
Replacing the Dome

If the polycarbonate dome is damaged or scratched beyond use, contact your distributor or salesperson to order a V25 Dome Replacement Kit.

To replace the V25 dome:

1. Use the security hex key (provided) to remove the three #6-32 5/8 in. machine screws securing the V25 plate and dome to the base (see *Figure 9*). Put aside.
2. Use a Phillips screwdriver to remove the three #6-32 1/4 in. machine screws that attach the dome retainer plate to the front plate.
3. Remove the damaged dome and replace it with the new dome and gasket. The gasket should be between the dome and the V25 base (see *Figure 9*).
4. Use a Phillips screwdriver to attach the dome retainer plate to the V25 front plate with the three #6-32 1/4 in. machine screws you removed in *step 2*.
5. Use the security hex key to replace the three #6-32 x 3/8 in. machine screws to attach the front plate and dome to the base.

Figure 9 Dome Replacement


#6-32 X 3/8 in. security head machine screws (x3)
Front plate
Polycarbonate dome
Silicone gasket (glued to dome)
Retainer plate
#6-32 x 1/4 in. Phillips-head machine screws (x3)

Solving Common Technical Issues

No Video

- ❒ Check that the power supply voltage is within the operating specifications for your camera model. See *Specifications* for details.
- ❒ Connect a video monitor directly to the V25 video output cable to eliminate video problems that could be caused by other equipment such as video switches.
- ❒ Check the video connections to the monitor or CCTV system.
- ❒ Check the camera connections to the V25 power supply.

Fuzzy Video

- ❒ Check the video ground connections.
- ❒ Check for ground loops.

Rolling Picture (Line-Lock Cameras Only)

- ❒ Adjust the phase as described in *Adjusting the Line Lock (Vertical Phase) for 24 VAC Operation*.
- ❒ If the phase cannot be adjusted to prevent picture roll, reverse the power supply polarity.

Call Silent Witness Service Department for additional assistance (see *Service* for contact numbers).

Service

Subject to the terms and conditions listed on the Product Warranty Card, during the warranty period Silent Witness will repair or replace, at its sole option, free of charge, any defective products returned prepaid.

In the event you have a problem with any Silent Witness product, please call Custmer Service for assistance or to request a **Return Authorization (RA)** number.

In the U.S.A. and Canada, call 1.800.893.9513.

Or call +1.604.574.1523.

Be sure to have the model number, serial number, and the nature of the problem available for the technical service representative.

Prior authorization must be obtained for all returns, exchanges, or credits. **Items shipped to Silent Witness without a clearly identified Return Authorization (RA) number may be refused.**

Specifications

Note Specifications apply to all camera models, unless noted otherwise.

Video Specifications

Pickup device:	1/3 in. CCD	
Electronic iris:	1/60 (1/50) to 1/100,000 seconds	
Surge protection:	1.5 kW transient	
Video output impedance:	1 Vp-p @ 75 Ω	
Video signal:		
Monochrome	Standard EIA or CCIR	
Color	Standard NTSC or PAL	
Resolution:	High RES	Standard RES
Monochrome	570 TV lines	410 TV lines
Color	480 TV lines	350 TV lines
Signal to noise ratio:	High RES	Standard RES
Monochrome	50 dB	50 dB
Color	better than 51 dB	better than 51 dB
Sync system:	12 VDC Internal 24 VAC External (Line Lock)	
Light sensitivity:	High RES	Standard RES
Monochrome	0.05 lux @ f1.4 (0.10 lux @ f2.0)	0.05 lux @ f1.4 (0.10 lux @ f2.0)
Color	0.5 lux @ f1.2	0.4 lux @ f1.2

Power Requirements

Warning **The use of CSA Certified/UL Listed Class 2 power adapters is required to ensure compliance with electrical safety standards.**

Current consumption and input voltage:	
Monochrome (DC)	11 to 16 VDC, 150 mA @ 12 VDC
Monochrome (AC)	17 to 32 VAC, 2.5 W
Color and EXview (DC)	11 to 16 VDC, 250 mA @ 12 VDC
Color and EXview (AC)	17 to 32 VAC, 3.5 W

Operating Environment

Operating temperature:	
Monochrome	-4°F to 140°F (-20°C to 60°C)
Color and EXview	-4°F to 122°F (-20°C to 50°C)

Size and Weight	
Diameter x height x diameter above surface:	4.7 in. x 3.4 in. x 4.7 in. (119 mm x 86 mm x 119 mm)
Diameter x height overall:	6 in. x 33/4 in. (152 mm x 95 mm)
Weight:	1.8 lbs. (816 g)
Electrical Box Requirements	
Indoor or outdoor, deep, double-gang electrical box:	
Length x width x depth:	3 3/4 in. x 3 in. x 3 1/2 in. (95 mm x 76 mm x 89 mm)
Four #6-32 mounting holes:	3.3 in. x 1.8 in. (84 mm x 46 mm)
Ratings	NEMA 4X IP66X FCC

Cable Guidelines

Maximum Power Supply Cable Length (feet/meters) Cameras With AC/DC Power Supplies

Total load	Power supply	Wire gauge 24 AWG	22 AWG	18 AWG	16 AWG
2.5 W	15 VDC	260/79	415/126	1055/322	1680/512
2.5 W	24 VAC	608/185	980/299	2515/767	3930/1198
3.5 W	15 VDC	60/18	100/30	250/76	400/122
3.5 W	24 VAC	470/143	760/232	1926/587	3065/934

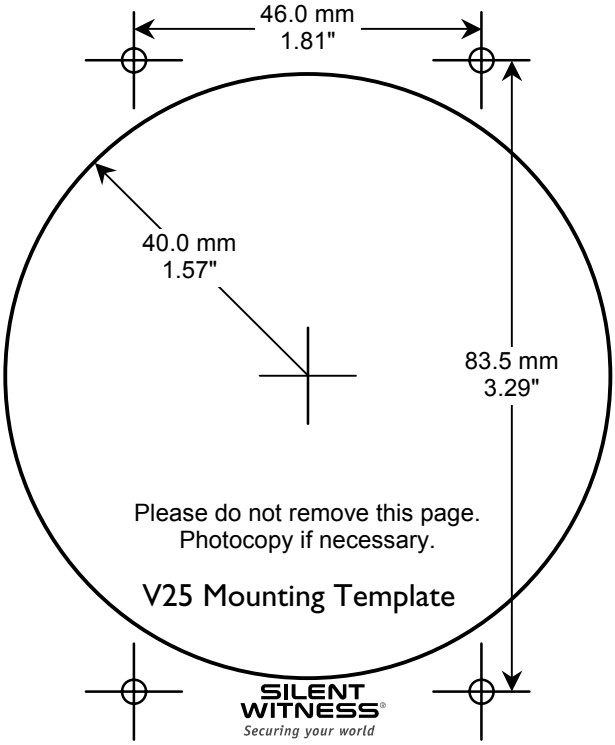
Note Calculations are based on an unregulated linear power supply, which would be the worst case. Using a regulated or switching power supply can increase the cable distance. Silent Witness recommends using a **CSA Certified/UL listed Class 2** power adapter to ensure compliance with electrical safety standards.

Maximum Video Coaxial Cable Length (feet/meters)

Cable type	RG-59	RG-6	RG-11
Wire gauge	23 AWG*	18 AWG*	16 AWG*
Maximum length (feet/meters)	750/229	1500/457	2000/610

* Copper clad steel core, 95% braided shield

Mounting Template



V25 Model Numbers

V25B21036 Typical V25 model number

Lens Options:

	Size mm	Viewing Angle Horiz.	Vert.	F-stop
029	2.9	90°	67°	2.0
036	3.6	74°	55°	2.0
060	6.0	42°	32°	2.2
080	8.0	32°	24°	2.2
120	12.0	22°	17°	2.0

Camera Options:

B1	Monochrome (EIA)
B21	Monochrome (CCIR)
B6	High resolution monochrome (EIA)
B26	High resolution monochrome (CCIR)
C1	Color (NTSC)
C21	Color (PAL)
C6	High resolution color (NTSC)
C26	High resolution color (PAL)

Note Some combinations of options are not available. Please contact your Silent Witness sales representative for ordering information.

Regulatory Compliance

FCC Statement (U.S.A.)

This device complies with **Part 15** of the **FCC Rules**. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Industry Canada Notice

This **Class B** digital apparatus meets all requirements of the **Canadian Interference-Causing Equipment Regulations.**

Cet appareil numérique de la **classe B** respecte toutes les exigences du **Règlement sur la matériel brouilleur du Canada**.

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Specifications subject to change without notice.
Imperial conversions are approximate.

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